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J. I. Medford, F. J. Behringer, J. D. Callos, and K. A. Feldmann: Normal and Abnormal Development in the Arabidopsis Vegetative Shoot Apex, 631–643

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S. McQueen-Mason, D. M. Durachko, and D. J. Cosgrove: Two Endogenous Proteins That Induce Cell Wall Extension in Plants, 1425–1433

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T. E. Bureau and S. R. Wessler: *Tourist*: A Large Family of Small Inverted Repeat Elements Frequently Associated with Maize Genes, 1283–1294
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T. Ueda, W. Waverczak, K. Ward, N. Sher, M. Ketudat, R. J. Schmidt, and J. Messing: Mutations of the 22- and 27-kD Zein Promoters Affect Transactivation by the Opaque-2 Protein, 701–709
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R. Baltz, J.-L. Evrard, C. Domon, and A. Steinmetz: A LIM Motif Is Present in a Pollen-Specific Protein, 1465–1466